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THE BASIC IMPORTANCE OF ESCALATION

DONALD A. HANTULA
ST. JOSEPH'S UNIVERSITY

Decision making is perhaps the most salient activity distinguishing managers from nonmanagers in an organization. Thus, it is not surprising that a vast literature on decision making exists in the administrative sciences. Numerous analytical and quantitative models of optimal decision making, decision rules, and computer-based decision support systems have been developed to assure effective decision making in organizations. Despite the well-developed decision rules and normative models taught in any modern business curriculum (see e.g., Bazerman, 1990; Horngren & Foster, 1991; Shapiro, 1990), individual and collective decisions in organizations are often less than optimal. In many instances, managers may persist or even escalate allocating resources to a seemingly failing course of action beyond the prescriptions of economic rationality or any normative decision rules. Given the apparent violation of standard decision practice and the very real costs of such "decision fiascoes," a growing body of research has focused on this phenomenon (see Staw & Ross, 1989, for a review).

Behavior analysis is not often considered as a viable account of behavior in organizations or of managerial decision making (Locke, 1977). Close inspection of O'Hara, Johnson, and Beehr's (1985) review of the organizational behavior management (OBM) literature shows that most behavioral applications in the private sector focus on nonmanagerial employees. Thus, although OBM applications have proven very successful in improving important line employee performances, their effect on managerial performance and decision making is not yet clearly demonstrated. Consequently, most previous research in escalation often ignores possible behavioral explanations, and research that does discuss behavioral explanations often discounts the value of a behavioral analysis of escalation, claiming that the very existence of escalation is counter to what would be expected from "reinforcement theory" (Barton, Duchon, & Dunegan, 1989; Brockner & Rubin, 1985; Staw & Ross, 1978; although see Platt, 1973). This is unfortunate, not only because it may be another instance of misinterpretation and misrepresentation of behavior analysis (Todd, 1987) but also because such a priori discounting of a behavioral analysis of escalation has perhaps hindered any real progress in understanding and managing escalation. Indeed, the literature often presents contradictory and disunified accounts of escalation (Bowen, 1987; Brockner, 1992), and prescriptions for managing escalation based on this literature (Staw & Ross, 1987) have not been supported through research (Barton et al., 1989).

Such disunity regarding the nature and causes of escalation suggests that basic questions about the phenomenon remain unanswered. One such question is the role of intermittent reinforcement. Staw and Ross (1987, 1988, 1989) suggested that intermittent reinforcement may underlie escalation. However, until Goltz's (1992) research, this suggestion had not been investigated or taken seriously. Goltz's major finding, that after experience with a simple schedule of intermittent reinforcement individuals will continue to commit resources to a nonperforming course of action, may not seem particularly surprising, important, or generalizable at first glance. However, these data may have important implications for basic assumptions and questions in decision making, such as the role of individual history, schedules of events, and the importance of escalation, as well as the role of behavior analysis in understanding and managing decision making.

Address correspondence to the author, Department of Management and Information Systems, College of Business and Administration, St. Joseph's University, 5600 City Avenue, Philadelphia, Pennsylvania 19131–1395.

The Basic Importance of Individual History

Decision making may be best understood as a choice between two or more alternatives (Rachlin, 1989). In a behavioral account of decision making, the immediate and past environments are primary determinants of current and future decisions. Many other disciplines in the administrative sciences may also tacitly recognize the importance of individual history in explaining current behavior; however, past behavior and consequences are usually assumed or inferred. Nevertheless, a viable explanation of a person's current behavior, no matter how seemingly irrational their actions may be, requires careful consideration of the individual's history. In fact, decisions which may seem irrational to an observer may be quite rational when viewed in context of the individual's history (see Herrnstein, 1990).

Because individual histories are often difficult and/or unethical to measure directly or manipulate in human subjects, various hypothetical constructs under the rubric of cognition, memory, personality, or trait have been invented and used in the place of individual history. Hypothetical constructs may seemingly solve the problem of measuring individual history (but may also introduce other problems of their own). However causality cannot be established, and the problem of manipulating individual history still remains. A common solution to the problem of manipulating individual history in escalation studies is the case-study role-play research method, in which subjects are provided with a description of a case and asked to imagine themselves in that scenario and to behave accordingly.

Such case-study role-play research has been used extensively in studies of hypothesized self-justification processes, a theoretical explanation of escalation that dominates the literature (Brockner, 1992) but is not always readily replicable (Barton et al., 1989; Singer & Singer, 1985). According to self-justification theory, individuals who have committed larger amounts of resources to a course of action are more likely to escalate the amount of resources committed to a later nonperforming course of action. Contrary to a self-justification account, the data found by Goltz (1992) show clearly that the subjects in the continuous reinforcement groups, who had a history of continuous successful investments, committed the greatest amount of money to the stock during acquisition but committed the least amount of money when the investment no longer provided returns. Conversely, those subjects in the variable reinforcement groups, who had a history of intermittent success, committed less money to the stock during acquisition but were more likely to escalate during extinction. Thus, Goltz's results are counter to a self-justification explanation of escalation but are entirely consistent with a behavioral explanation. In essence, Goltz has replicated decades of research in one of the most basic findings in behavior analysis—resistance to extinction. These results, along with failures to replicate self-justification effects, call into serious question assertions that self-justification underlies escalation (Brockner, 1992) and underscores the basic importance of attending to history, whether it is the history of the subject or the history of the phenomenon under study.

The Basic Importance of Schedules

Most (if not all) administrative decisions are sequential. A single decision rarely causes business failure, but failure may result from a series of decisions over time, none of which were intended to trigger failure but the sum of which lead to a failing course of action (Akerlof, 1991; Mawhinney, in press). It is somewhat ironic that although escalation is often defined as *persisting* in a course of action, implying behavior repeated over time (Akerlof, 1991; Brockner, 1992), or as temporally dependent phenomenon (Staw & Ross, 1989), it is rarely researched in other than a one-shot case-study method. However, much research has shown that the temporal relationship of events exerts profound effects on behavior (Zeiler, 1984).

An intriguing case in point of the importance of individual history and schedules in explaining so-called irrational behavior, which may also have implications for escalation, can be found in the literature on shock-maintained behavior (Byrd, 1969). The major finding in this literature is that subjects will respond on reinforcement schedules,

most notably fixed-interval (FI) schedules, that terminate in electric shock. No food, water, or drugs are offered as consequences, only shock; yet subjects will continue to respond under the FI schedule for weeks in rates and patterns indistinguishable from those engendered under FI responding for food (Morse & Kelleher, 1977). Are these subjects "responding for shock" just as the subjects in Goltz (1992) are "throwing good money after bad"? Perhaps not, in both cases. In the case of shock-maintained behavior, evidence suggests an immediate history of avoidance training (Byrd, 1969), response elicitation (Hutchinson, 1977), or selective punishment of long interresponse times (Galbicka & Platt, 1984) as causal factors, each of which are by-products of adaptation. Similarly, in the case of escalation, it has been suggested that subjects may be adapting to ill-structured situations or equivocal circumstances (Bowen, 1987). In either case, although subjects are clearly escalating "into" deleterious consequences, it is not at all clear that such behavior is irrational when individual history is considered.

Another important temporal factor in the context of escalation is delay. Staw and Ross (1989) point to construction projects and to research and development initiatives as being particularly susceptible to escalation because of the delays involved between investment and outcome. Likewise, much research has demonstrated that subjects will often opt for smaller short-term rewards instead of larger delayed rewards and larger delayed aversive outcomes instead of smaller, immediately aversive outcomes (see Logue, 1988, for a review). That is, delayed outcomes are discounted. This function of delay may parallel the discounting function of probability as proposed by prospect theory (Whyte, 1986), an increasingly influential theoretical explanation for escalation that has also been researched via the case-study method. In prospect theory, subjects are said to often opt for smaller, more probable rewards over larger, less probable rewards and larger, less probable aversive outcomes instead of smaller, more probable aversive outcomes. That is, less probable outcomes are discounted.

Prospect theory (or framing) focuses solely on stated probabilities between two outcomes or problem "frame," seemingly ignoring the possible effects of history. Decisions are assumed to be independent of one another. According to a framing account, subjects evaluate possible outcomes from a neutral reference point, and are risk averse (not likely to escalate) when choosing between two gains, but risk seeking (likely to escalate) when choosing between two losses. However, it has been shown that if a problem is sequential (requiring repeated decisions), prospect theory cannot account for the results of sequential choice in terms of discounting due to probabilities, but a behavioral model that explicitly considers discounting due to delay can account for the data (Rachlin, Logue, Gibbon, & Frankel, 1986). Thus, it is not clear whether prospect theory, like self-justification theory, can provide a valid explanation of escalation when Goltz's (1992) data are considered.

Further, although delay was not specifically manipulated by Goltz (1992), the acquisition data also seem contrary to a framing account of escalation. If it can be assumed that subjects began Goltz's studies from a similar neutral reference point, during acquisition those in the continuous reinforcement groups would most likely have adopted a positive decision frame due to their continuous string of returns, perhaps becoming risk averse and consequently investing less over time. Conversely, during acquisition, subjects in the partial reinforcement groups would have adopted a less positive, or even negative, frame due to their successes and losses, perhaps becoming risk-seeking and investing more over time. Contrary to a framing account, the opposite was found. Subjects in the continuous reinforcement groups clearly showed increased investing in a positively accelerated manner during acquisition, whereas subjects in the partial reinforcement groups behaved quite differently. Those in the variable group maintained the steady rate of investing that is expected under a variable-ratio 2 (VR 2) schedule, whereas those in the fixed group quickly adopted a single-alternation pattern of investing that conformed to the parameters of the schedule, a fixed-ratio 2 (FR 2) schedule. It is interesting to note that both the VR 2 and FR 2

schedules provided the same density of reinforcement, differing only in sequence, yet subjects' behavior under these two schedules was profoundly different during both acquisition and extinction phases. These results underscore the basic temporal dependence of decisions and the importance of sequences of events (schedules) as primary determinants of behavior (Morse & Kelleher, 1977).

The Basic Importance of Escalation

Despite a lack of consensus regarding its nature or causes, escalation has captured the attention of researchers in several disciplines for close to two decades. Probable reasons for this persisting interest may be not only the counterintuitive violation of economic rationality and normative decision rules evident in escalation but also the ubiquitous nature of escalation. Besides the wealth of examples cited by Akerlof (1991) and Goltz (1992), informal everyday observation may reveal numerous other instances of escalation in personal and professional lives. For example, in a recent issue of *Fortune,* Kiechel (1992) observes that "hard times are sending some bosses back to the Stone Age" (p. 157); many organizations are responding to economic downturn by abandoning progressive management and reverting to repressive and bureaucratic management practices, the same types of practices Kiechel notes were once abandoned because they were not particularly effective and also were rampant in the (now defunct) Soviet Union and Eastern bloc.

Staw and Ross (1988) stated that "most escalation situations involve intermittent reinforcement schedules" (p. 32). Indeed, subjects in the no-training group in Goltz's Experiment 2 responded much like those in the variable groups in both experiments, suggesting that people bring a history of partial reinforcement to bear on sequential decision tasks. Perhaps so much research and teaching in schools of business are dedicated to normative decision rules and models because of the powerful and ubiquitous contingencies that would engender escalation in the absence of these rules (see Catania, Matthews, & Shimoff, 1982). Therefore, the emphasis on rationality that has permeated so much of the research in escalation may have the issue confused; as Bowen (1987) suggested, escalation may be a rational response to an ill-structured, irrational situation.

Escalation remains an important phenomenon because it may serve as a type of litmus test for decision theories purporting to explain and predict actual decision making. As Goltz (1992) has shown, some of the most basic principles of behavior analysis can explain escalation. A behavior-analytic account of escalation seems to be more parsimonious, predictive, heuristic, and complete than do other prevailing theories; and may provide a basis for reconciling opposing accounts of escalation as well as function as a catalyst for some provocative progress in both basic and applied behavior analysis. In addition to the aforementioned literature on shock-maintained behavior, there is a growing literature in basic behavior analysis that provides parallels to complex behavior and situations found in many organizations and speaks to adaptive perspectives on economics (Hursh, 1984), decision making in conditions of diminishing returns (Hackenberg & Hineline, 1992), rational choice (Herrnstein, 1990), and decisions under risk/foraging (Fantino & Abarca, 1985). This literature offers a solid empirical basis for analyzing and understanding decision making more concisely and precisely than is currently acknowledged, as well as providing the impetus and conceptual basis for extending successful behavioral applications in organizations from nonmanagerial personnel to the ranks of management and into the realm of decision making.

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